admixtures. It may be assumed that abnormally high values may occur in absulutely pure TiO_2 preparations due to the lattice-defects. As experiments show, the abnormal properties of TiO_2 are connected with the excessive valence of the admixtures and are consequently determined by the state of their valence-electrons. There are no vacant nodes in the crystal lattice of such a solid solution. The energy of formation of the vacant nodes in the oxygen part of the lattice ($\sim$3,1 eV) is substantially lower than that in the titanium part of the lattice ($\sim$2o eV). A solid solution of the substitution type is therefore formed as a result of the reaction. It further follows from the equation that the number of surplus valence-electrons and consequently also conductivity depends exponentially on temperature and inverse proportionally on oxygen pressure. This corresponds to experimentally obtained data. The difference between the radius of the impurity cations and the amount of Ti^{4+} leads to the accumulation of a considerable elastic energy which forms the main factor for the reduction of the concen-

tration limit of the solid solutions. The method described in reference 11 was applied for the calculation of the dielectric permeability. A rapid increase of ε according to the increase of the impurity concentration and its dependence on frequency is most likely correlated with the interaction of the electrons of the impurity centers: 1) Only such admixtures as have a valence and a greater ion-radius than titanium, exercise a marked influence in the value ε, tgδ and on the conductivity of TiO_2. These impurities form F--centers and the energetic center spectrum of the surplus valent electrons can be calculated similarly to the hydrogen- and helium atoms. The high value of the index of the refractor causes the formation of great orbit radii of the surplus valent electrons and a substantial polarizability. This effect alone, however, cannot explain the rapid increase of ε and the dependence of dispersion of ε on the temperature, frequency and concentration of impurity atoms. 2) The polarization caused by impurity centers

has a resonance- and not a relaxation-mechanism. The frequency of resonance corresponds to the frequency of the electron-exchange between impurity centers and depends only on the concentration of impurity atoms and on the orbit radius of electrons. The coordination between the experimentally found and the approximately calculated values which take account of the interaction of the electrons of impurity centers, are satisfactory.
There are 10 figures, 2 tables and 12 references, 9 of which are Slavic.

AVAILABLE: Library of Congress

1. Rutile--Electrical properties 2. Rutile--Impurities

Card 4/4

AUTHORS: Mikhaylov, G. P., Fedoseyev, G. P., 48-22-3-17/30
Skanavi, G. I., Chmutin, M. S., Ksendzov, Ya. M.,
Matsonashvili, B. N., Kolomoytsev, F. I., Vodop'yanov, K. A.

TITLE: Discussions on Reports Submitted by:K. A. Vodop'yanov and I. G. Vorozhtsova; K. A. Vodop'yanov and G. I. Galibina; B. N. Matsonashvili (Preniya po dokladam: K. A. Vodop'yanova i I. G. Vorozhtsovoy; K. A. Vodop'yanova i G. I. Galibinoy; B. N. Matsonashvili)

PERIODICAL: Izvestiya Akademii Nauk SSSR,Seriya Fizicheskaya, 1958, Vol. 22, Nr 3, pp. 309-310 (USSR)

ABSTRACT: G. P. Mikhaylov comments the report submitted by K. A. Vodop'yanov and I. G. Vorozhitskaya as follows: The frequency band is too narrow in the lecture delivered as to draw any conclusions on the relaxation processes in mica. - G. P. Fedoseyev says with respect to the same lecture: The lectured conclusions are apparently scarcely convincing. The explanation of the change-mechanism of the dielectric constant and of the angle-tangent in mica, however, is of value. Complementary works must be carried out, however, in order to give a more convincing effect to the judgement on the relaxation character

Card 1/4

in mica. - G. I. Skanavi: Two essential contradictions exist between the works by K. A. Vodop'yanov and G. I. Galibina and the work by B. N. Matsonashvili. 1) Matsonashvili discovered relaxation maxima on the tg δ-curves of the alkaline--halogen crystals, which were not observed by Vodop'yanov and Galibina. 2) Vodop'yanov and Galibina maintain that with an increase in lattice-energy of the alkaline-halogen crystals, the tg δ decreases at room-temperature and high-frequency. Matsonashvili did not find such a correlation. The first contradiction is based on the fact that Vodop'yanov and Galibina determined the temperature dependence of tg δ on the basis of measurements at different temperatures with large temperature intervals and not in vacuum. The second contradiction may be explained by the fact that the real losses of the alkali-halogen crystals are very small at room-temperature. The losses increase rapidly, however, due to the hygroscopicity of many crystals, if no precautions were taken. M. S. Chmutin: An approximating extra-polation of the tg δ-value to high temperatures, leads - according to data by Vodop'yanov and Galibina - to a conformity with our experiments. Though

Discussions on Reports Submitted by: K. A. Vodop'yanov and 48-22-3-17/30
I. G. Vorozhtsova; K. A. Vodop'yanov and G. I. Galibina;
B. N. Matsonashvili

Matsonashvili carries out his tests in vacuum, his results by extrapolation to high temperatures, are higher than ours. - Ya. M. Ksendzov: Data with smaller values of tg δ, viz. the data obtained by B. N. Matsonashvili, inspire more trust.- B. N. Matsonashvili: The work-results obtained by Vodop'yanov and Galibina suffer from the fact that they were determined under atmospheric conditions. The hygroscopicity of the samples was markedly expressed in this case. Chmutin criticized the high tg δ-values I obtained. I showed in my work that the dielectric properties depend on the previous history of the sample. Therefore, only results obtained by the measurement of one and the same sample may be compared. It would be absolutely necessary to carry out a "complex" investigation of the different properties of the alkaline-halogen monocrystals with the same samples and on the same conditions. - F. I. Kolomoytsev: It may be assumed that no fundamental contradictions exist between the experimentally obtained results which were determined in the laboratories by G. I. Skanavi and K. A. Vodop'yanov since the previous history of

Card 3/4

Discussions on Reports Submitted by: K. A. Vodop'yanov and 48-22-3-17/30
I. G. Vorozhtsova; K. A. Vodop'yanov and G. I. Galibina;
B. N. Matsonashvili

the samples may cause different results with the measuring of the tg δ. - K. A. Vodop'yanov: The methods applied are the decisive factor in carrying out similar works as that by Matsonashvili and ours. The results obtained by Skanavi with his method cannot deny the presence of a connection between tg δ and lattice-energy. It must be replied to G. P. Fedoseyev that it was not provided within the scope of this work to explain the practical usefulness of the thermal treatment of mica.

AVAILABLE: Library of Congress

1. Mica--Dielectric properties 2. Single crystals--Dielectric properties 3. Single crystals--Conductivity 4. Alkaline -halogen crystals--Dielectric properties

Card 4/4

AUTHORS: Skanavi, G. I., Knendzov, Ya. M., Trigubenko, V. M., Prokhvatilov, V. G. 48-22-3-1/30

TITLE: Non-Piezoelectric Dielectrics With High Dielectric Constant (Nesegnetoelektricheskiye dielektriki s vysokoy dielektricheskoy pronitsayemost'yu). Abridged Contents of the Report. . - The Complete Article is Published in ZhEFT, 1957, Nr 33, p. 320 (Kratkoye soderzhaniye doklada, podrobnaya stat'ya opublikovana v ZhETF, 33, 320 (1957)).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958, Vol. 22, Nr 3, pp. 325-235 (USSR)

ABSTRACT: As is known, the fundamental properties of piezoelectrics are correlated with the spontaneous polarization within the temperature-range below Curie point. It follows from the conditions of thermodynamic equilibrium that the dielectric constant in the Curie point corresponding to the phase transition attains very high (theoretically infinite). There is, however, a possibility of increasing the dielectric constant of the solid dielectrics at the expense of

Card 1/4

Non-Piezoelectric Dielectrica With High Dielectric Constant. 48-22-3-1/30
Abridged Contents of the Lecture. - The Complete Article is Published in
ZhETF, 1957, Nr 33, p. 320

relaxation ionization which is caused by the relatively marked displacement of the ions and which is not correlated with the phase transition at Curie point. The combination of the considerable ion displacements with a local field favorable to polarization in the lattice of the type "perovskite" may result in an excessively high dielectric constant without piezoelectric properties. The experimentally found values show that the loosening of the lattice of the type "perovskite" (strontium titanate, solid solutions of strontium titanate and lead-titanate, barium titanate) by means of a part-substitution of the bivalent cations by cations of high valence (bismuth, cerium) without structural change and with low conductivity results really in an important increase of the dielectric constant (up to several thousands). The dependence of the ε and of tgδ on the temperature apparently indicates the relaxation character of polarization. The elaboration of the experimental values by applying the hypothesis on relaxation ionic polarization

Card 2/4

Non-Piezoelectric Dielectrics With High Dielectric Constant. Abridged Contents of the Report. The Complete Article is Published in ZhETF, 1957, Nr 33, p. 32o

48-22-3-1/3o

makes it possible to estimate a series of values characterizing the process of polarization. Results show that the fundamental hypothesis agrees with the experimentally obtained data and that it is not contrary to the phenomenological theory. The substitution of the bivalent cations in the lattice of the type of "perovskite" by cations of high valence leads to the formation of solid solutions of the deduction type. In this case it follows from the condition of the electric neutrality of the lattice that empty nodes must be formed in the cation part of the lattice. The intensity of the lines on Debye samples decreases equally according to the rules governing the process. It may be assumed that the empty nodes are formed at the expense of the bivalent cation (strontium or barium). The presence of empty nodes and trivalent cations in the lattice of the "perovskite" type must lead to a distortion of the oxygen octahedron surrounding the titanium-ion and consequently to a greater liberty of its translocation. Consequently, a re-

Card 3/4

Non-Piezoelectric Dielectrics With High Dielectric Constant. Abridged Contents of th Report.. - The Complete Article is Published in ZhETF, 1957, Nr 33, p. 32o

48-22-3-1/3o

laxation polarization which increases the dielectric constant, can be superimposed over the ordinary elastic (electron and ion) polarization.

ASSOCIATION: Fizicheskiy institut im.P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev, AS USSR)

AVAILABLE: Library of Congress

1. Dielectrics--Properties

Card 4/4

KSENDZOV, Ya.M.; ROTENBERG, B.A.

Effect of pressure on the electric properties of barium titanate in weak fields. Fiz. tver. tela 1 no.4:637-642 '59. (MIRA 12:6)

(Barium titanate--Electric properties)

KSENDZOV, Ya. M.

PHASE I BOOK EXPLOITATION SOV/4893

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoystvam ferritov i fizicheskim osnovam ikh primeneniya. 3d, Minsk, 1959

Ferrity; fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites; Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: N. N. Sirota, Academician of the Academy of Sciences BSSR; K. P. Belov, Professor; Ye. I. Kondorskiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Professor; G. A. Smolenskiy, Professor; N. N. Shol'ts, Candidate of Physical and Mathematical Sciences; K. M. Smolyarenko; and L. A. Bashkirov; Ed. of Publishing House: S. Kholyavskiy; Tech. Ed.: I. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and galvanomagnetic properties of ferrites, studies of the growth of ferrite single crystals, problems in the chemical and physicochemical analysis of ferrites, studies of ferrites having rectangular hysteresis loops and multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, magnetic spectroscopy, ferromagnetic resonance, magneto-optics, physical principles of using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetism, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual articles.

Ferrites (Cont.) SOV/4893

Card 10/18

Card 4/18

S/181/60/002/011/018/042
B006/B056

AUTHOR: Ksendzov, Yu. M.

TITLE: Mechanism of the Electrical Conductivity of Ferro- and Antiferromagnetic Semiconductors

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 11, pp. 2778-2783

TEXT: Ferro- and antiferromagnetic semiconductors are compounds of the transition elements of the 3d group with oxygen, selenium, sulfur, and other elements, and are characterized by a particularly low carrier mobility. They have been studied in many experiments. It has also been found that in them impurities of tenths of % and less often do not lead to metallic conductivity, whereas this is the case with ordinary semiconductors. Also various theories of these semiconductors have been developed, especially the theory by S. V. Vonsovskiy, which demands that s-d interaction be taken into account. The author has studied the properties of compounds of the transition elements of the 3d group, in which the ion character of the chemical bond is sufficiently well marked. In these compounds, the p-band of the anions is completely filled up and is lower than the occupied d-levels of the transition elements. The author has now endeavored to

Card 1/3

Mechanism of the Electrical Conductivity of Ferro- and Antiferromagnetic Semiconductors

S/181/60/002/011/018/042
B006/B056

explain some of the most important experimental data concerning the temperature dependence of the electrical conductivity of ferro- and antiferromagnetic compounds, with the effect of magnetic ordering being taken into account. It is shown that with ferromagnetic ordering, a d-band is formed in any compound. The metallic or semiconductive character of conductivity, however, depends on the completion of the d-shell of the transition element and on the symmetry of the crystal field. The wave functions of the d-electrons in antiferromagnetics may be considered to be localized on ions (atoms) in spite of the possibility of overlapping in the planes of ordering. The conductivity has a semiconductive character and is actually related to thermal fluctuations of the magnetic ordering. In the paramagnetic region of ferro- and antiferromagnetic compounds, the d-bands are formed at low values of the total moment of momentum (J) whose limit depends on the structure of the crystal lattice. When the ion of the transition element has high values of J, the d-band is formed in small regions as a consequence of fluctuations of the magnetic ordering. The activation energy of the electrical conductivity is related to the formation of the conduction band. Professor G. A. Smolenskiy is thanked for his valuable advice and discussions. There are 1 figure and 23 references: 4 Soviet, 10 US, 1 British, 1 Canadian, 3 Dutch, and 1 Swiss.

Card 2/3

Mechanism of the Electrical Conductivity of Ferro- and Antiferromagnetic Semiconductors

S/181/60/002/011/018/042
B006/B056

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad
(Institute of Semiconductors of the AS USSR, Leningrad)

SUBMITTED: June 17, 1960

Card 3/3

Semiconducting properties of nicklous oxide. V. P. Zhuze, A. I. Shelykh.

Mobility of current carriers in ferro-and antiferro-magnetic material Ya. M. Ksendzov.

Electrical properties of chalcogenides of rare earth elements. A. V. Golubkov, Ya. V. Goncharova, V. P. Zhuze, V. M. Sergeyeva.

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

KSENDZOV, Ya.M.; ANSEL'M, L.N.; VASIL'YEVA, L.L.; LATYSHEVA, V.M.

Current carrier mobility in NiO containing Li. Fiz. tver. tela 5 no.6:1537-1547 Je '63. (MIRA 16:7)

1. Institut poluprovodnikov AN SSSR, Leningrad.

KSENDZOV, Ya.M.; DRABKIN, I.A.

Forbidden band width in nickel oxide. Fiz. tver. tela 7 no.6:1884-1886 Je '65. (MIRA 18:6)

1. Institut poluprovodnikov AN SSSR, Leningrad.

L 13358-63 EWT(1)/EWG(k)/BDS/EEC(b)-2 AFFTC/ASD Pz-4 AT/IJP(C)
ACCESSION NR: AP3001269 S/0181/63/005/006/1537/1547 65 62

AUTHOR: Ksendzov, YA. M.; Ansel'm, L. N.; Vasil'yeva, L. L.; Latyshsheva, V. M.

TITLE: Mobility of current carriers in NiO containing impurities of Li

SOURCE: Fizika tverdogo tela, v. 5, no. 6, 1963, 1537-1547

TOPIC TAGS: current carrier, Ni, Li, O, polaron, thermoelectromotive force, Hall effect, electrical conductivity, acceptor, donor

ABSTRACT: The authors have examined the electrical conductivity, thermoelectromotive force, and Hall effect in solid solutions of Li sub x Ni sub 1-x O for values of x between 0.01 and 0.2 in the temperature interval from liquid nitrogen to 300C. The experimental data are satisfactorily explained by the ordinary energy scheme with a narrow polaron band formed by holes at levels of Ni sup II and by acceptor levels lying above the Ni sup II level at 0.2 ev and more, depending on the Li concentration. In the computations the authors kept in mind the partial compensation of acceptors by donors formed by vacant sites in the oxygen part of the lattice; they also considered the electronic conductivity along acceptor levels. Data on the Hall effect and computation of drift velocity

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L 13358-63

ACCESSION NR: AP3001269 3

have shown that the mobility of holes in the polaron band diminishes but the mobility of electrons in acceptor levels increases exponentially with rising temperature. The activation energy of hole mobility is near the energy corresponding to the Debye temperature, but the energy of electron mobility is double the energy of the exchange interaction for antiferromagnetic ordering. "The authors express their thanks to N. N. Parfenova for chemical analysis and to A. G. Tutov for x-ray analysis of the samples." Orig. art. has: 9 figures and 7 formulas.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, Academy of Sciences, SSSR)

SUBMITTED: 28Dec62 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 007 OTHER: 013

Card 2/2

L 2509-66 EWT(m)/EPF(c)/EWP(t)/EWP(z)/EWP(b) IJP(c) JD/HM/

ACCESSION NR: AP5014602 UR/0181/65/007/006/1884/1886

AUTHOR: Ksendzov, Ya. M.; Drabkin, I. A.

TITLE: On the width of the forbidden band in nickel oxide

SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1884-1886

TOPIC TAGS: nickel compound, forbidden band, electric conductivity, thermal emf

ABSTRACT: In view of abundant evidence pointing to the fact that earlier data, according to which the width of the forbidden band of NiO is 2 eV, do not take into account the equilibrium with the surrounding medium and are inaccurate, the authors obtain more accurate data on the width of the forbidden band by measuring the dependence of the photocurrent on the radiation energy, the electric conductivity, and thermal emf of single-crystal NiO. The single crystals were obtained in a manner similar to that described by R. R. Cech and E. J. Alessandriny (Trans. Am. Soc. Met. v. 51, 150, 1951). The electric conductivity and the thermal emf were measured in a vacuum of 10^{-4} mm at relatively low temperatures. A value of 3.7 eV is obtained for the width of the forbidden band, and it is deduced from the temperature dependence of the electric conductivity that the conductivity is mixed, such that the mobility of the holes exceeds the mobility of the electrons. This corresponds to a

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L 2509-66

ACCESSION NR: AP5014602

transition of an electron from the $Ni^{2+}(3d^8)$ band to the $Ni^{+}(3d^9)$ band, which is allowed by the selection rules. It is also shown that both bands are of appreciable width and cannot be represented in the form of localized levels. Orig. art. has: 2 figures and 4 formulas.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AN SSSR)

SUBMITTED: 16Jan65 ENCL: 00 SUB CODE: SS

NO REF SOV: 001 OTHER: 006

PC

Card 2/2

KSENDZOV, Yu.P., starshiy inzh.

Stand for testing the ZhR-5 transmitter-receiver. Avtom., telem.i sviaz' 6 no.5:43 My '62. (MIRA 15:4)

1. Lyublinskaya distantsiya signalizatsii i svyazi Moskovskoy dorogi.

(Railroads—Electronic equipment)

DUDCHENKO, P.; KSENDZOVSKIY, L.

Alternate milling of high and low grade flour. Muk.-elev.prom. 22 no.10:25 O '56. (MLRA 9:12)

1. Donetskiy trest Glavmuki.
(Grain milling)

SOV-118-58-7-15/20

AUTHORS: Dudchenko, P.A., Ksendzovskiy, L.P. and Kaufman, L.M., Engineers

TITLE: The Mechanization of Labor Operations With Grain and Flour (Mekhanizatsiya trudoyëmkikh rabot s zernom i mukoy)

PERIODICAL: Mekhanizatsiya trudoyëmkikh i tyazhëlykh rabot, 1958, Nr 7, pp 37-39 (USSR)

ABSTRACT: In the grain and flour bins of the Ministerstvo khleboproduktov (Ministry of Bread Products) many loading, unloading and interior storage operations are still carried out by manual labor or by using inconvenient mobile mechanisms. The article presents one example (the Yelenovka mel'zavod Nr 17, Stalinskoye oblupravleniye of the Ministry of Bread Products) where complex mechanization of flour loading-unloading and interplant transportation has been achieved. There are 3 schematic drawings.

1. Flour--Storage 2. Flour--Handling

Card 1/1

DUDCHENKO, P.A., inzh.; KSENDZOVSKIY, L.P., inzh.; KAUFMAN, L.M., inzh.

Introducing machinery in labor-consuming work with grain and flour. Mekh. trud. rab. 12 no. 7:37-39 Jl '58. (MIRA 11:7)
(Grain-handling machinery)

KSENDZOVSKIY, L., inzh.

Construction of closed canals in grain warehouses. Muk. elev. prom. 24 no.11:12 N '58. (MIRA 11:12)

1. Stalinskoye oblastnoye upravleniye Ministerstva khleboproduktov USSR.

(Grain--Storage)
(Grain-handling machinery)

KSENDZOVSKIY, L., inzh.; KAUFMAN, L., inzh., IVASHCHENKO, A., inzh.,
Furda, M., inzh.

Practices of the Yasinovka Flour Mill in producing macaroni flour.
Muk.-elev.prom. 25 no.12:11-13 D '59. (MIRA 13:4)

1. Stalinskoye upravleniye khleboproduktov.
(Yasinovka--Flour mills)

KSENDZOVSKIY, L., inzhener

Electric blocking of protective cashing of units having starting devices and electric engines. Muk.-elev.prom.26 no.5:29 My '60. (MIRA 14:3)

1. Stalinskoye upravleniye khleboproduktov.
(Machinery--Safety appliances)

KSENDZOVSKIY, M.I.; SALANT, M.Ye.

Case of anaphylactic shock with fatal outcome following a single dose of penicillin. Antibiotiki 5 no.3:105-106 My-Je '60.
(MIRA 14:6)

1. Khirurgicheskoye otdeleniye (zav. - prof. B.Ye.Frankenberg) Odesskoy gorodskoy klinicheskoy bol'nitsy.
(PENICILLIN) (SHOCK)

~~65091~~ 69591

S/131/60/000/04/03/015
B015/B008

AUTHORS: Starun, V.R., Ksendzovskiy, V.R.

28.1000 15.2200

TITLE: The Automation of High-temperature Tunnel Kilns of the Zaporozh'ye Works of Refractories

PERIODICAL: Ogneupory, 1960, No. 4, pp. 157-166

TEXT: In the paper under review the authors describe the automation of these tunnel kilns, which were erected according to the design by the Vsesoyuznyy institut ogneuporov (VIO) (All-Union Institute of Refractories) and intended for the firing of magnesite- and chromium-magnesite products at temperatures of from 1600-1700° and higher. A mixture of coke and blast-furnace gas with a calorific value of 2000/kcal/per m^3 was used as fuel. The design for the automation of these kilns had been worked out by the Tsentral'noye proyektno-konstruktorskoye byuro Glavproyektmontazhavtomatika (Central Design and Drawing Office of the Glavproyektmontazhavtomatika) in accordance with technical data of the VIO, and provided for the automatic stabilization of the gas consumption, the pressure in the kiln tunnel, and the amount of air

Card 1/3

~~6911~~ 6959,

The Automation of High-temperature Tunnel Kilns of the Zaporozh'ye Works of Refractories

S/131/60/000/04/03/015
B015/B008

which is supplied from the kiln to the drying plant. An automatic measuring of the temperature in the firing zone by means of a radiation pyrometer was also envisaged. Electronic potentiometers of type EPP-09, which are inserted into the kiln with the aid of the tuyere according to Fig. 1, were used for measuring the temperature of the goods to be fired. The installation of the radiation pyrometers may be seen from Fig. 2. The dependence of temperature on the air supply is shown in Fig. 3. Investigations carried out showed that the existent high-temperature tunnel kilns can only be converted to automation with difficulty, and must be redesigned, as described in the report of the TsPKB of the Glavproyektmontazhavtomatika of the Ministerstvo stroitel'stva RSFSR (Ministry of Building Activity of the RSFSR). An experimental system of automation (Fig. 4) which provides for the control of air rarefaction in the kiln, the amount of hot air removed for drying, the combustion of fuel and the temperature in the firing zone was worked out. The following apparatus was used for this purpose: Extremum controllers of type TsNIIKA, jet pressure controllers of type RDNIA, an electronic controller of type ERK-77 with an air current pressure-gage of type TNSK, the final control element mechanism of type IM 6/120, the electronic potentiometer of type EPP-120, the final control element mechanism of type IM 2/120, the controller of type IR-130, the magnetic gas

Card 2/3

The Automation of High-temperature Tunnel Kilns of the Zaporozh'ye Works of Refractories

~~65091~~ 69591
S/131/60/000/04/03/015
B015/B008

analyzer of type MGK-348, the primary element of type DGK-358 with hydro-compressors of type GK-5015. As may be seen from Fig. 5, the automatic control warrants the exact maintaining of the given temperature, thus increasing the quality and homogeneity of the products. The authors finally state than an installation for the automatic control of the kiln temperature at the individual points of the firing zone, a remote control of the gas supply to each individual burner, as well as an automatic pressure control in the injector ducts was worked out. This installation makes it possible automatically to maintain the temperature conditions in the tunnel kilns with great accuracy. There are 5 figures and 5 Soviet references.

ASSOCIATION: Zaporozhskiy ogneupornyy zavod (Zaporozh'ye Works for Refractories)
TsPKB Glavproyektmontazhavtomatika (Central Design- and Drawing Office of the Glavproyektmontazhavtomatika)

Card 3/3

KSENDZOVSKIY, V.R., inzh.; VOLODIN, Ye.Ye., inzh.

Automatic control of heat conditions in a tunnel kiln. Mekh. i avtom.proizv. 15 no.12:1-5 D '61. (MIRA 14:12)
(Kilns) (Automatic control)

KZENDZOVSKIY, V.R.; BONDAREVSKIY, A.M.

Automatic analysis of stack gases from rotary kilns for oxygen content. Ogneupory 26 no.5:236-239 '61. (MIRA 14:6)

1. TSentral'noye protektno-konstruktorskoye byuro Glavproyektmontazh-avtomatiki (for Ksendzovskiy). 2. Zaporozhskiy ogneupornyy zavod (for Bondarevskiy).

(Kilns, Rotary)
(Gases—Analysis)

GOZENBUK, L.G., inzh.; KSENDZOVSKIY, V.R., inzh.

Automatic control of a rotary fire-clay roasting kiln. Mekh. i avtom proizv. 16 no.6:22-26 Je '62. (MIRA 15:6)
(Kilns, Rotary) (Automatic control)

KSENDZOVSKIY, V.R.; VVEDENSKIY, L.G.

Stabilizing raw materials feed into rotary grog-burning kilns.
Ogneupory 27 no.5:212-218 '62. (MIRA 15:7)

1. TSentral'noye proyektno-konstruktorskoye byuro "Glavproyektmontazh-avtomatika" (for Ksendzovskiy). 2. Zaporozhskiy ogneupornyy zavod (for Vvedenskiy).
(Kilns, Rotary) (Feed mechanisms)

KSENDZOVSKIY, V.R.

Automatic control of rotary grog-burning kilns. Ogneupory 27 no.7:308-311 '62. (MIRA 15:8)

1. TSentral'noye proyektno-konstruktorskoye byuro Glavproyektmontazhavtomatika.
(Kilns, Rotary) (Automatic control)

GAMERSHTEYN, V.A., inzh.; LITVINENKO, V.G., inzh.; Prinimali uchastiye: FILONOV, V.A., inzh.; KSENDZUK, F.A., inzh.; SAMOYLOV, I.D., inzh.; VERBITSKIY, A.I., inzh.; YASHNIKOV, D.I., inzh.; LEYCHENKO, M.A., kand. tekhn. nauk; CHAMIN, I.K., tekhnik; TOKAR', P.K., inzh.; ZAYTSEV, P.P., inzh.

Mastering the production of cold-rolled sheets. Met. i gornorud. prom. no.6:72-74 N-D '62. (MIRA 17:8)

1. Zavod "Zaporozhstal'" (for Gamershteyn, Litvinenko, Filonov, Ksendzuk, Samoylov, Verbitskiy, Yashnikov). 2. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. Bardina (for Leychenko, Chamin, Tokar', Zaytsev).

KSENDZYK, G. V.

KSENDZYK, G. V. -- "Investigation of the Conditions for Obtaining and the Mechanism of Sintering Chalk-Fluxed Agglomerate of Krivoy Rog Ores." Min Higher Education USSR. Donets Order of Labor Red Banner Industrial Inst imeni N. S. Srushchev. Stalino, 1955. (Dissertation for the Degree of Candidate of Technical Sciences.)

SO: Knizhnaya Letopis', No 5, Moscow, Feb 1956

KSENDZYK, G.V.

SOV/137-58-8-16453

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 32 (USSR)

AUTHOR: Ksendzyk, G.V.

TITLE: Analytical Method for the Calculation of the Consumption of Coke in Blast Furances (Analiticheskiy metod rascheta raskhoda koksa v domennykh pechakh)

PERIODICAL: V sb.: Domennoye proiz-vo, Moscow, Metallurgizdat, 1958, pp 125-137

ABSTRACT: A method of the calculation of the consumption of coke by means of the construction of zonal thermal diagrams is described, including curves of the heat consumption of the blast furnace (at different temperature levels) and curves of the input of heat (taking into account the heat of the blast and the consumption of heat in the heating of the coke to the ignition temperature). The amount of C reaching the tuyeres and the approximate consumption of coke for the projected smelting are found with the aid of the respective diagrams. The magnitude of the heat losses is estimated by data extant for operating furnaces. Bibliography: 5 references.

Card 1/1 1. Coke--Consumption 2. Furnaces--Operation N.L.

KSENDZYK G.V.

AUTHOR: Ksendzyk, G.V., Candidate of Technical Sciences

TITLE: Thermite Surfacing (Termitnaya naplavka)

PERIODICAL: Avtomaticheskaya Svarka, 1958, Nr 4, pp 59-64 (USSR)

ABSTRACT: The described experiments are aimed at examining the possibilities and peculiarities of coating low-carbon steel with special steel by applying the thermite method. This method is simple, requires no electric current, and appears suitable for reconditioning parts of crude machinery like crushers or mining machines. The experiments were restricted to coating horizontal surfaces. The technology of covering low-carbon steel with steel "Kh12" was developed. The composition of thermite and the process parameters are recommended. Specimens forged after thermite joining did not separate in bending tests up to the breaking point. The height of the fusion metal must be not less than 30% of the thickness of the coated part; the part must be pre-heated to 500-700°; the surface has to be carefully cleaned prior to coating; shrinkage cavities and porous spots appear on up to 10% of the surface. It was found that the cavities and the porous spots can be displaced from the part being coated, to specially arranged heated feeding heads

Card 1/2

Thermite Surfacing

125 59-4-8/15

on the coating layer. The advantages of the thermite method are: very short reaction (5 100 kg metal fuses in 20 25 sec) and simplicity of the required equipment. There are 7 figures and 3 tables.

ASSOCIATION: Institut elektrosvarki imeni Ye O. Patona AN UkrSSR (Electric Welding Institute imeni Ye.O. Paton of the AS UkrSSR)

SUBMITTED: July 10, 1957

AVAILABLE: Library of Congress

Card 2/2

133-58-5-4/31

AUTHORS: Strashnikov, I. B., Astakhov, A. G., Ksendzyk, G. V. Fedorovskiy, N. V. and Shumilov, K. A.

TITLE: The Dependence of the Coke Rate and the Output of a Blast Furnace on the Basicity of Sinter (Zavisimost' raskhoda koksa i proizvoditel'nosti domennoy pechi ot osnovnosti aglomerata)

PERIODICAL: Stal', 1958, Nr 5, pp 398-402 (USSR)

ABSTRACT: The influence of the basicity of sinter on the coke rate and the output of blast furnaces is discussed on the basis of data collected from periods of experimental and normal operations of blast furnaces on the Southern Iron and Steel Works (Table). The dependence of the decrease in the coke rate on the basicity of sinter - Fig.1; the dependence of the increase in the output of iron per unit of coke on the sinter basicity - Fig.2; the dependence of the intensity of coke combustion in a blast furnace on the sinter basicity - Fig.3; the content of +25 mm (a) and 0-5 mm (b) fraction in sinter after the P. G. Rubin drum tests in samples of sinters of various basicities - Fig.4; the content of fractions +40 mm (a), +25 mm (v) and 0-5 mm(b) in samples of sinters of various basicities collected from blast furnace bunkers - Fig.5; the dependence of the

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133-58-5-4/31

The Dependence of the Coke Rate and the Output of a Blast Furnace on the Basicity of Sinter

intensity of combustion of coke in a blast furnace on the size distribution of sinters of various basicities - Figs. 6 and 7. Conclusions: Coke rate is inversely proportional to the sinter basicity. Under operating conditions of the Southern Works the maximum saving of coke is obtained when limestone is completely removed from the burden and amounts to about 12-14%. The intensity of the combustion of coke depends on the size distribution of sinter and increases with increasing proportion of coarse fractions. The output of a blast furnace is determined by the relation between the burden to coke ratio (increasing with increasing sinter basicity) and the intensity of the combustion of coke in the furnace (decreasing with increasing sinter basicity due to the decreasing content of coarse fractions). It is necessary to take some measures to improve the size distribution of high basicity sinters. It would be advantageous to take as the main criterion of the sinter quality the content of +25 mm fraction after the test in the P. G. Rubin drum and not the content of 0-5 mm fraction. There are 1 table and 7 figures.

Card 2/2

ASSOCIATION: Institutu chernoy metallurgii i gornogo dela AN Ukr.SSR (Ferrous Metallurgy Institute and Mining Institute of the Ac.Sc. of the Ukrainian SSR)

KSENDZYK, G.V., kand.tekhn.nauk

Changes in the resistance to flow of agglomeration compacts during the sintering process. Izv. vys. ucheb. zav.; chern. met. no.7:3-16 Jl '58. (MIRA 11:10)

1. Kiyevskiy politekhnicheskiy institut.
(Sintering) (Viscosity)

AUTHOR: Ksendzyk, G.V. SOV-125-58-9-7/14

TITLE: New Method to Produce Unfusing Fluxes (Novyy sposob proizvodstva neplavlennykh flyusov)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 9, pp 40-47 (USSR)

ABSTRACT: In the production of unfusing fluxes, a new method of grain formation from a dry mixture with the use of a disc granulator (Figure 1) and by calcination in a "bubbling" ("kipyashchiy sloy") layer is suggested. The granulator operation is described as well as the grain size and the factors affecting its efficiency. Information includes data on preliminary experiments and composition of experimental fluxes (Table 1). The quality of fluxes produced by the described method is equal to that of ceramic fluxes produced by conventional ways. It can be used in semi-automatic welding with flux feed from a hose.
There are 2 diagrams, 1 photo, 3 sets of microphotos and 4 tables.

Card 1/2

New Method to Produce Unfusing Fluxes SOV-125-58-9-7/14

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona AN USSR (Institute of Electric Welding imeni Ye.O. Paton, AS UkrSSR)

SUBMITTED: December 13, 1957

1. Welding fluxes--Preparation 2. Welding fluxes--Production
3. Welding fluxes--Applications

Card 2/2

KSENDZYK, G.V.

Thermit built-up welding. Avtom. svar. 11 no.4:59-64 Ap '58.
(MIRA 11:6)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.

(Thermit) (Hard facing)

KSENDZYK, O.V.

New method of preparing nonfused fluxes. Avtom.svar. 11 no.9:40-47 S '58. (MIRA 11:11)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona AN USSR.
(Flux (Metallurgy))

25(7)

AUTHOR: Ksendzyk, G.V. SOV/125-59-8-8/18

TITLE: Using the ADC-1000 Automatic Welding Device for Beading with an Electrode Band

PERIODICAL: Avtomaticheskaya svarka, 1959, Nr 8, pp 67-69 (USSR)

ABSTRACT: This article deals with conversion of several types of automatic welding machines for beading with an electrode band. The author states that for fusion with an electrode band of low-carbon, carbon, or stainless steel, copper, bronze, etc. the A-384, ABS and other apparatus of the Institut elektrosvarki imeni Ye.O. Patona (Institute of Electric Welding imeni Ye.O. Paton) are usually used. These have a type A head working on a constant feed rate principle. The author outlines some of the difficulties in using these machines for beading with a cast-iron electrode band. For this type of beading an electrical circuit is necessary to maintain constant arc voltage. For using the A-384 and other machines a supplementary unit (A-384-L30) is attached to the existing electrical circuit; the

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induction head drive is replaced with a DC drive with a regulated number of revolutions (the MUN, SL-569, and other types). Of welding apparatuses operating on the principle of automatic maintenance of constant arc voltage, the ADS-1000 automatic welding device, put out by the zavod "Elektrik" (the "Elektrik" Works), is the most common. On the basis of experiments done at the Institute of Electric Welding imeni Ye.O. Paton the possibility of using the ADS-1000 for fusion with cast-iron and other electrode bands, prepared by rolling and crystallization of the molten metal (e.g. G13, 4Kh13 and 3Kh2V8 steels) was established. This automatic machine can also be used successfully for fusion with an electrode band of cold rolled metal. For fusion with an electrode band some modification of the welding head (Fig 1) is necessary. This is outlined. The ADS-100 unit illustrated is a 1948 model; the author states that the modifications are applicable to other models. The author describes the

Using the ADC-100 Automatic Welding Device for Fusion with an Electrode Band SOV/125-59-8-8/18

method for adding the mechanism for raising the head, absent on recent models. This modification of the ADS-1000 does not prevent its being used for its essential purpose - welding and fusing with electrode wire. In conclusion the author reviews some specific applications of the modified ADS-1000. There are 1 photograph and 1 sectional diagram.

ASSOCIATION: Ordena trudovogo krasnogo znameni - Institut elektrosvarki imeni Ye.O. Patona (Order of the Red Banner of Labor - Institute of Electric Welding imeni Ye.O. Paton) AN USSR (AS Ukr SSR)

SUBMITTED: May 27, 1959

Card 3/3

SOV/125-12-2-6/14

18(5)

AUTHOR: Ksendzyk, G.V.

TITLE: Automatic Fusing of a Film of Blanched Pig-Iron with the Aid of a Pig-Iron Electrode Band (Avtomaticheskaya naplavka sloya otbelënnogo chuguna c pomoshchyu chugunnoy elektrodnoy lenty)

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 2, pp 54-58 (USSR)

ABSTRACT: Band electrodes were until recently not used in fusing metals which resist abrasive wear-and-tear because of the difficulty of alloying. Abrasion-resistant alloys contain carbides of various elements which govern their resistance. It was proposed that the crystallization method of rolling liquid metal, which was developed by A.V. Ulitovskiy and Ye.G.Nikolayenko for the preparation of an electrode band with a high content of carbon and alloy admixtures should be used. The ordinary white or blanched pig-iron obtained during smelting has good resistance to abrasive wear. Production of pig-iron

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Automatic Fusing of a Film of Blanched Pig-Iron with the Aid of a Pig-Iron Electrode Band

SOV/125-12-2-6/14

electrode band is now in progress at Kiyev. It is externally similar to that made from black tin-plate, but has a less pure surface. Its chemical composition is: 3.3 - 3.6% C, 0.3 - 0.4% Mn, 1.3 - 1.4% Si. The ferrite or ferrite-perlite structure with its flakey graphite deposits is analogous to the structure of malleable pig-iron. The article describes the details of the fusion technology, and then turns to the properties of the fused metal and possible fields in which its fusion can be used. The structure of the metal on fusion depends on the cooling rate. The hardness of blanched pig-iron depends on the structure of the matrice, dimensions and form of the cementite; it may vary between 40 and 50 H_{RS}. Experiments showed that the fused pig-iron wears several times more slowly than ordinary carbonaceous building steel and is only slightly inferior to Stalinite fused by a carbon arc. It was established that the loss of weight of tested specimens was 5 - 7.0 grams for steel, 1.9 grams for fused blanched pig-iron, and 1.6 grams for Stalinite fused under

Card 2/3

Automatic Fusing of a Film of Blanched Pig-Iron with the Aid of a Pig-Iron Electrode Band

a carbon arc. The automatic fusion of pig-iron electrode band is 8-12 times more economical than the hand smelting of Stalinite because of greater productivity and cheaper materials. The conclusions are first that pig-iron band produced by crystallization (rolling of liquid metal) can be used as electrode material. Secondly a special flux (AN - 28) has been developed for the purpose. Thirdly the hardness of blanched pig-iron is equivalent to 40-50 N_{RS}. Resistance to wear is 3-3.5 times greater than carbonaceous constructional steel. There are 5 illustrations and 5 references, 4 of which are Soviet and 1 English.

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elektrosvarki imeni Ye.O.Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye.O.Paton of the AS UkrSSR)

SUBMITTED: November 6, 1958

Card 3/3

KSENDZYK, O.V.

Effect of the rate of cooling on the structure of deposited cast iron. Avtom.svar. 13 no.7:49-57 Jl '60.
(MIRA 13:7)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.
(Hard facing) (Cast iron--Metallography)

KSENOZYK, G.V.

PHASE I BOOK EXPLOITATION SOV/5975

International Institute of Welding

XII kongress Mezhdunarodnogo instituta svarki, 29 iyunya - 5 iyulya 1959 v g. Opatii (Twelfth Annual Assembly of the International Institute of Welding, Opatija, June 29 - July 5, 1959) Moscow, Mashgiz, 1961. 359 p. 3000 copies printed.

Sponsoring Agency: Natsional'nyy komitet SSSR po svarke.

Ed. (Title page): G. A. Maslov, Docent; Translated from English, French, and Serbo-Croatian by N. S. Aborenkova, K. N. Belyayev, E. P. Bogacheva, L. A. Borisova, K. V. Zvegintseva, V. S. Minavichev, and M. M. Shelechnik; Managing Ed. for Literature on the Hot-Working of Metals: S. Ya. Golovin, Engineer.

PURPOSE: This collection of articles is intended for welding specialists and the technical personnel of various production and repair shops.

Card 1/

COVERAGE: The collection contains abridged reports presented and discussed at the Twelfth Annual Assembly of the International Institute of Welding. Reports deal with problems of welding and related processes used in repair work, repair techniques, and the problems arising in connection with the nature of the base and filler materials. Examples of repairing various parts are given, and the organization of repair operations in workshops and under field conditions is discussed. Economic aspects of welding and related processes as used in repair work are analyzed. No personalities are mentioned. There are no references.

TABLE OF CONTENTS: [Only Soviet and Soviet-bloc reports are given here]

32604
S/137/61/000/011/057/123
A060/A101

12300

AUTHOR: Ksendzyk, O.V.

TITLE: Wear-resistant building up with a cast iron strip electrode

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 57-58, abstract 11Ye368 (V sb. "Polucheniye izdeliy iz zhidk. met. s uskoren. kristallizatsiyey". Moskva - Kiyev, Mashgiz, 1961, 304-311)

TEXT: The author sets forth the substance of the work carried on at the electric welding institute of the Academy of Sciences UKrSSR. The electrodes are fabricated from annealed cast iron strip, wound into a coil. The strip composition (in %) is: C 3.0 - 3.4, Mn 0.35 - 0.4, Si 1.5 - 1.7. In the building up the electrode produces a bead of refined cast iron with similar chemical composition. The width of the electrode strip is 40 - 100 mm, the thickness is 0.6 - 1.0 mm. The built-up parts may be operated under abrasion at 300 - 500°C. A special feature of the building up with a cast iron electrode strip is the requirement for the use of equipment with automatic regulation of the electrode feed-rate as a function of the arc voltage. The flux for the

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32604
S/137/61/000/011/057/123
A060/A101

Wear-resistant building up.....

building up is formed of a 5-component slag system which may be characterized as an alloy of Ca aluminate with silica and fluorspar with a low alkali content (1-2%). For an electrode 70 mm wide and 0.65 - 0.75 mm thick the optimum conditions are: the arc voltage 19 - 21 volts, current 800 amps, build-up rate 10 meters/hour. The structure of the built up metal may be regulated by heating or cooling the base metal prior to the building up. The built up cast iron is somewhat poorer in its wear characteristics than stalinite. The wear of white built-up cast iron on the specimens constituted 1.9 g, that of stalinite - 1.6 g. Specimens of high-chrome castiron showed the lowest wear - 0.62 g. Build up by a cast iron electrode may be applied in mining and metallurgical enterprises, in excavating equipment, and in other branches. Automatic building up by cast iron strip increases the productivity by a factor of 8-12 as compared with manual building up. There are 8 references.

Ye. Terpugov

[Abstracter's note: Complete translation]

Card 2/2

27382
S/125/61/000/003/010/016
A161/A133

1.2300 1573

AUTHOR: Ksendzyk, O.V.

TITLE: On the technology of build-up welding with cast iron electrode band

PERIODICAL: Avtomaticheskaya svarka, no. 3, 1961, 81 - 87

TEXT: Information is given on experiments continued at the Electric Welding Institute after the possibility of building-up with malleable cast iron bands had been discovered two years ago (Ref. 1: O.V. Ksendzyk, Naplavka sloya otbelennogo chuguna s pomoshch'yu chugunnoy elektrodnoy lenty. Avtomaticheskaya svarka, no. 2, 1959). The method has been used since 1959 in the Soviet industry for parts of metallurgical equipment, earth-moving machinery, blast equipment, but not without difficulties. The results of experiments and technological recommendations are presented. The 43 (ChE) electrode band used by the institute is produced by rolling the liquid metal as described in Ref. 2 (O.V. Ksendzyk, Chugunnaya elektrodnaya lenta. Avtomaticheskaya svarka, no. 5, 1960); the special АН-28 (AN-28) flux is a mixture of calcium aluminosilicates and eutectics of them with calcium fluoride. This flux is low-oxidizing and may be used for building-up alloy steel as well. The welding equipment should maintain automatically a con-

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On the technology of build-up welding with....

stant arc voltage and accomodate the electrode feed device. The A-384 and АДС--1000 (ADS-1000) welders have been adapted for cast iron electrode band (Ref. 4: G.V. Ksendzyk, Ispol'zovaniye svarochnogo avtomata ADS-1000 dlya naplavki elektrodnoy lentoy. Avtomaticheskaya svarka, no. 8, 1959), and a special new electrode holder with two rollers designed for 20 - 100 mm wide and 0.5 - 1.5 mm thick band. [Abstracter's note: The article contains trade names only of the new special electrode holder, welders and welding converters and transformers.] Detailed recommendations of the building-up process are given, including tables of welding current to be used for electrode bands of different width, dependence of the dimensions of the deposited metal strip on the welding current and welding speed, dependence of the deposited chilled metal hardness on the thickness and temperature of the base metal; voltage being used in welding with alternating current and with direct current; flux quantity being used and the content of CaO and $K_2O + Na_2O$ in it (up to 44% and 2%, respectively). The alloy elements are listed by which the hardness and wear resistance of the deposited chilled iron may be raised (Cr, Ni, Mn, B, Ti, Te, nitrogen) and 4 possible ways of adding the alloy elements by other means than additions into electrode band metal. These 4 methods are: 1) Coating the alloying mixture on the surface of the workpiece. The mixture should contain 2 - 4% bakelite powder, and the workpiece heated to 250 -

Card 2/3

On the technoloty of build-up welding with....

280°C. 2) Using special ceramic and fused fluxes. 3) Feeding simultaneously two electrode bands of different metal. 4) Adding alloy elements to the flux. The building-up of flat metal surfaces with holes is recommended with the aid of graphite plugs in the holes. The alloying recommendations are given with references to Soviet publications. References are made also to data of Engineer A.I. Golovashchuk concerning the proper welding voltage; current calculation formulae derived by D.M. Rabkin (Ref. 5: Energeticheskoye issledovaniye prielektrodnykh oblastey moshchnoy svarochnoy dugi. Avtomaticheskaya svarka, no. 2, 1951); data of P.P. Bushtedt, V.I. Dyatlov and I.I. Frumin on the effect of stabilizing electrode coatings in the building-up process (Ref. 6, Avtogennoye delo, no. 4, 1938); data of K.K. Khrenov on the fusion rate in the process with direct polarity and different electrode coatings. One of the surface alloying methods, with alloying mixture applied to the workpiece surface, had been suggested by the author and tested by V.K. Kalenskiy. Student Ya.M. Vishnevetskiy of RISKhM participated in the experimental work. There are 5 figures and 14 Soviet-bloc references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR ("Order of the Red Banner of Labor" Electric Welding Institute im. Ye.O. Paton AS UkrSSR)

SUBMITTED: June 25, 1960

Card 3/3

26487
S/125/61/000/009/012/014
D040/D113

1.2310 1573 also 1413, 1496

AUTHORS: Ksendzyk, V.G.; Subbotovskiy, V.P.; Shirin, V.S.

TITLE: Preparation of bimetal billets for merchant shapes using electro-slag facing with a wide electrode

PERIODICAL: Avtomaticheskaya svarka, no. 9, 1961, 79-81

TEXT: The Institut elektrosvarki im. Ye.O.Patona (Electric Welding Institute im. Ye.O.Paton) has developed a new method for cladding metal billets with wear-resistant metal prior to final rolling into merchant bar stock. The essence of the method consists in preparing a groove on steel billets, e.g. blooms by rolling, and filling the groove with other metal using the electro-slag process. The arrangement is shown in a diagram (Fig.1). The shoe remains immobile, the billet is moved continually past the shoe, and a massive wide electrode is fed downward. The shoe is sealed by locks, or by graphite (Fig.2) to prevent metal and slag from running out. Only slight bath level fluctuations are permissible, the bloom must move with a speed matching the groove filling. An automatic control system (Fig.3) moves a carriage with the bloom on. The d.c. motor driving the carriage is

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Preparation of bimetal billets ....

fitted with an electrodynamic amplifier, and a feeler on the shoe reacts to the approach of liquid bath level and changes current in the amplifier excitation winding to speed up the carriage. The system is controlled by a voltmeter, a control tube and a rheostat on the control board. The electrode is fed automatically. Three advantages of the method are pointed out: (1) High productivity of the process due to strong current used. (2) Massive square or round electrodes can be used, and they are cheaper than electrode wire, powder wire, ceramic flux etc. (3) Cladding blocks in inclined position is possible with a comparatively simple arrangement, and short electrode that can be used are easy to guide accurately. There are 3 figures.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O.Paton, AS UkrSSR)

SUBMITTED: May 22, 1961

Card 2/5

KSENDZYK, Georgiy Vasil'yevich, kand. tekhn. nauk; RYZHIK, Z.M., red.; GRIGOR'YEVA, I.S., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Mechanized built-up welding under flux of a layer of chilled cast iron by a cast-iron ribbon electrode]Mekhanizirovannaia elektrodugovaia naplavka pod fliusom sloia otbelennogo chuguna chugunnoi elektrodnoi lentoi. Leningrad, 1962. 25 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Svarka i paika metallov, no.8)
(MIRA 15:9)

(Electric welding) (Hard facing)

S/125/62/000/007/004/012
D040/D113

AUTHOR: ~~Kaendzyk, G.V.~~

TITLE: AN-28 flux for arc surfacing with cast iron and high-alloy steels

PERIODICAL: Avtomaticheskaya svarka, no. 7, 1962, 25-30

TEXT: The АН-28 (AN-28) flux is a special grade for automatically surfacing steel parts with tape electrodes made of cast iron or alloy steel. The surfacing techniques were previously described by the author ("Avtomaticheskaya svarka", no. 2, 1959), who developed the flux in 1959 at the Institut elektrosvarki (Electric Welding Institute) (Author's Certificate no. 145828, Dec 22, 1960); none of the existing fluxes had sufficed for surfacing with cast iron tape electrodes. Beads deposited from any tape electrode with an AN-28 flux or wire electrodes, are well shaped, the slag crust can be easily removed, the welding process is stable, and the coatings sound, despite a low CaF_2 and SiO_2 content. The chemical composition of AN-28 is as follows (in %): SiO_2 (5-10), CaO (35-44), Al_2O_3 (36-45), CaF_2 (5-15), K_2O+Na_2O (1.0-2.0), MgO ($\leq$2.0), MnO ($\leq$1.0), FeO ($\leq$2.0), S ($\leq$0.08), P ($\leq$0.08), $(SiO_2+Al_2O_3)$ = 43-53%, and $(CaO+CaF_2)$ = 47-53%. It is melted in an electric furnace from a charge consisting of 7 % feldspar, 25% alumina, 40.5% chalk, 22% con-

Card 1/2

AN-26 flux for arc .....

centrated fluorite, and 5.5% calcined soda; it is then deoxidized in the furnace by additions of coke, and finally poured into water for granulation. The flux ensures a low oxidation of alloying and modifying elements in the surfacing process; the coatings are sound when the Si content in electrodes is high (1.0-1.5%) and when the core of the powder wire contains 2.5÷3% Na_2SiF_6; S and P are eliminated from the coating metal; cracks in the coatings can be prevented by preheating and subsequent slow cooling. The new flux has been tested in the field and is recommended for extensive use. There are 2 figures and 2 tables.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O. Paton, AS UkrSSR)

SUBMITTED: December 11, 1961

Card 2/2

MEDOVAR, B.I.; KSENDZYK, G.V.

Electric slag remelting of austenitic G13 steel. Avtom. svar. 15 no.9:18-21 S '62. (MIRA 15:9)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.
(Steel ingots) (Zone melting)

KSENDZYK, G.V.

Hard facing of wear-resistant cast iron. Avtom. svar. 16 no.9: 61-71 S '63. (MIRA 16:10)

1. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.

KSENDZYK, G.V.; GOLOVASHCHUK, A.I.

Properties of hard-faced cast iron with chromium and titanium addition alloys. Avtom. svar. 16 no.12:7-12 D '63.
(MIRA 17:1)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR.

KSENDZYK, G.V.; SHEKHTER, S.Ya.

Mechanized byildup welding of hammer crushing machine strikers using a cast iron ribbon electrode. Avtom.svar. 17 no.1:75-77 Ja '64. (MIRA 17:3)

1. Institut elektrosvarki imeni Patona AN UkrSSR (for Ksendzyk).
2. Kommunarskiy metallurgicheskiy zavod (for Shekhter).

KSENDZYK, G.V.; KASHCHENKO, F.D.; Prinimala uchastiye MAKAROVA, N.K., inzh.

Hard facing of mining and metallurgical equipment with a cast iron strip. Avtom. svar. 17 no.6:83-85 Je '64 (MIRA 18:1)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR (for Ksendzyk) 2. Magnitogorskiy metallurgicheskiy kombinat (for Kashchenko).

KOSENDYAK, G.V.

Using AN-60 flux for mechanized deposition of chilled cast iron on steel parts. Avtom. svar. 18 no.5:38-40 My '65. (MIRA 18:6)

1. Institut elektrosvarki im. Ye.O. Patona AN UkrSSR.

L 35813-66 EWP(k)/EWT(m)/T/EWI(w)/EWP(v)/EWP(t)/ETI JD/HM

ACC NR: AP6015249 SOURCE CODE: UR/0125/66/000/005/0063/0067

34
32
B

AUTHOR: Ksendzyk, G. V.

ORG: Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: Electroslag girth welding build-up of vertically positioned cylindrical parts

SOURCE: Avtomaticheskaya svarka, no 5, 1966, pp 63-67

TOPIC TAGS: electroslag welding, welding technology, carbon steel, cast iron plasticity

ABSTRACT: One of the factors limiting the widespread introduction of the build-up of high-alloy low-plasticity steels is cracks in the built-up metal. An extremely high proneness to cracking is displayed by chilled cast iron welded onto carbon steel. It is shown that this handicap can be eliminated by welding together cylindrical parts of low-plasticity steel and cast iron by the electroslag method when these parts are vertically positioned in a circular slag bath. The welding diagram is shown in Fig. 1. Work part 1 is vertically positioned within the crystallizer. Current flowing via current lead 4 enters electrode-tube 3 and the bottom 5 to which the work part is affixed. The process is commenced by shorting the electrode with respect to the bottom, whereby current is induced in annular slag bath 6. This slag bath is

Card 1/3 UDC: 621.791.756:621.791.92:621.9—434

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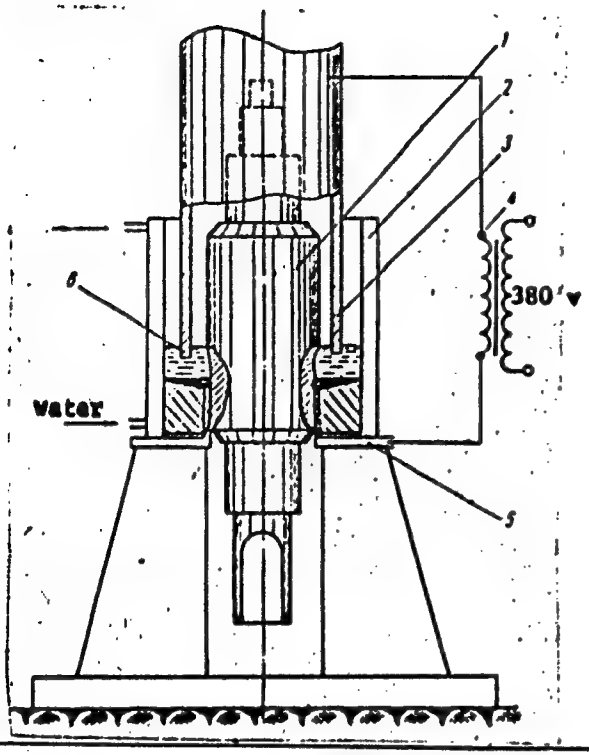

Fig. 1. Diagram of electroslag build-up of a cylindrical work part by an electrode-tube (assembled from rods)

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bounded on the inward side by the work part and on the outward side by water-cooled copper crystallizer 2. The heat released in the slag bath during the passage of the current melts the electrode-tube and fuses the surface of the work part. This setup was used to perform a series of experiments with the welding of various types of cast iron (normal, white, chilled, alloy) and R18 steel. A uniform depth of fusion (1-3 mm) could be accomplished on employing a welding current of 2600 a and a welding voltage of 26 v and the built-up metal thus obtained was compact and free of pores and cracks. Subsequently, this technique was used to experimentally build up a series of strip-mill rolls of which the roll built-up with Cr-Ni cast iron containing ~0.1% Mo displayed the highest strength as compared with cast rolls of the same kind. Thus, this new technique of electroslag girth welding build-up of vertically positioned cylindrical steel billets makes it possible to build them up with such low-plasticity alloys as chilled cast iron, R18 steel, and others, without prior reheating. This technique is most effective when used in the production and restoration of rolling-mill rolls, since it makes possible the creation of a highly productive bimetal roll with a steel core and a cast-iron work coating. Orig. art. has: 6 figures, 3 tables.

SUB CODE: 13, 11/ SUBM DATE: 18Jan66/

Card 3/3

KSENEVICH, G.F.

Oxyhemoglobinometry, blood circulation rate and pulmonary ventilation in school children at the age of 10-12 years during muscular work. Sbor. stud. nauch. rab. Nauch. stud. ob-va IAr. gos. ped. inst. no.3:104-110 '59. (MIRA 14:7)

(CHILDREN)
(BLOOD--OXYGEN CONTENT)
(EXERCISE)

KSENIN, I.

Automat hands out the change. Sov. torg. 34 no.9:44 S '61.
(MIRA 14:9)
(Vending machines)

KSENIN, L.A.

Results of organization. Bezop.truda v prom. 4 no.2:21 F '60. (MIRA 13:5)
(Cranes, derricks, etc.)

KSENOFONTOV, A.

Determining the distance of haulage. Avt. transp. 39 no.10:35-36 O '61. (MIRA 14:10)
(Leningrad--Transportation, Automotive)

KSENOFONTOV, A.I., dotsent; ROGATKINA, Zh.Ye., inzh.

Using odometers in testing compressibility of sand. Trudy MIIT no.100:3-25 '59. (MIRA 12:6)
(Sand--Testing)

KSENOFONTOV, A.I., dotsent, kand. tekhn. nauk

Relaxation theory of consolidation and a new method of calculating soil settlement in time. Trudy MIIT no.197: 68-142 '65. (MIRA 18:8)

KSENOFONTOV, A.I., dotsent; ROGATKINA, Zh.Ye., inzh.

Work practices with stability meters. Trudy MIIT no.100:95-102 '59. (MIRA 12:6)
(Soil mechanics)

ABELEV, Yu.M., doktor tekhn. nauk, prof.; ABELEV, M.Yu., inzh.; BAKHOLDIN, B.V., kand. tekhn. nauk; BEREZANTSEV, V.G., doktor tekhn. nauk, prof.; VYALOV, S.S., doktor tekhn. nauk; GODES, E.G., inzh.; GORBUNOV-POSADOV, M.I., doktor tekhn. nauk, prof.; DAINATOV, B.I., doktor tekhn. nauk, prof.; DOKUCHAYEV, V.V., kand. tekhn. nauk; KRUTOV, V.I., kand. tekhn. nauk; KSENOFONTOV, A.I., kand. tekhn. nauk; MARIUPOL'SKIY, G.M., kand. tekhn. nauk; MORAREskUL,N.N., inzh.; PERLEY, Ye.M., inzh.; SAVINOV, O.A., doktor tekhn. nauk; SIDOROV, N.N., kand. tekhn. nauk; SMORODINSKIY, N.[illegible], kand. tekhn. nauk; SOKOLOV, N.M., doktor tekhn.nauk; FEDKIN, A.Ya., inzh.; SHASHKOV, S.A., kand. tekhn.nauk; SHEYKOV, M.L., inzh.; YAROSHENKO, V.A., kand.tekhn.nauk, [deceased]; KHALIZEV, Ye.P., kand. tekhn. nauk, nauchn.red.

[Manual for the designing of industrial plants, apartment houses, and public buildings and structures; foundations] Spravochnik proektirovshchika promyshlennykh, zhilykh i obshchestvennykh zdanii i sooruzhenii; osnovaniia i fundamenty. Leningrad, Stroiizdat, 1964. 268 p.
(MIRA 18:1)

BEREZANTSEV, Vsevolod Glebovich, doktor tekhn. nauk, prof.; KSENOFONTOV, Aleksandr Ivanovich, kand. tekhn. nauk, dots.; PLATONOV, Yevgeniy Vladimirovich, prof.; SIDOROV, Nikolay Nikolayevich, kand. tekhn. nauk, dots.; YAROSHENKO, Vsevolod Aleksandrovich, kand. tekhn.nauk, dots.; GOL'DSHTEYN, M.N., doktor tekhn. nauk, prof., retsenzent; TERLETSKIY, V.P., inzh., retsenzent; LAPIDUS, L.S., inzh., retsenzent; ZHEREBTSOV, I.V., inzh., retsenzent; GLOTOV, N.M., inzh., retsenzent; SILIN, K.S., inzh., retsenzent; SURODEYEV, V.P., inzh., red.; KHITROV, P.A., tekhn. red.

[Soil mechanics and foundation engineering] Mekhanika gruntov, osnovaniia i fundamenty. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 339 p. (MIRA 14:8)

(Soil mechanics) (Foundations)

STEPANOV, L.L.; KSENOFONTOV, A.N.

Removing chips by pin conveyers. Stan.i instr. 29 no.6:38-39 Je '58. (MIRA 11:7)

(Conveying machinery)

DROBASHCHENKO, Ivan Tikhonovich; KSENOFONTOV, Aleksandr Nilovich; KRAVTSOV, V.N., prepodavatel', red.; MAKHOTENKO, B.S., prepodavatel', red.; MIRSKAYA, V.V., red.izd-va; IL'INSKAYA, G.M., tekhn.red.

[Fundamentals of electronics and radio engineering] Osnovy elektroniki i radiotekhniki. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1961. 283 p. (MIRA 14:6)

1. Rostovskiy gorno-elektromekhanicheskiy tekhnikum (for Kvartsov). 2. Novocherkasskiy khimiko-tekhnologicheskiy tekhnikum (for Makhotenko).

(Electronics) (Radio) (Transistors)

KSENOFONTOV, M. A., Irkutsk.

Automatic hydrogen pressure regulator in generators with hydrogen cooling. Energetik 6 no. 1:18-19 Ja '58. (MIRA 11:8)
(Pressure regulators)
(Electric generators--Cooling)

1. KSENOFONTOV, B.M.

2. USSR (600)

4. Technology

7. Casting by the method of vacuum intake. Moskva, Mashgiz, 1952

9. Monthly List of Russian Accessions, Library of Congress, February, 1953. Unclassified.

LUKANIN, B.K.; KHMOPONTOV, B.M., kandidat tekhnicheskikh nauk, retsenzent; GILEV, V.S., inzhener, redaktor.

[Pneumatic molding machines; structure, assembling, utilization and repair] Pnevmaticheskie formovochnye mashiny. Ustroistvo, montazh, ekspluatatsiia i remont. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroitel'noi lit-ry, 1954. 342 p. (MLRA 7:8)
(Molding machines)

KSENOFONTOV, B.M., kandidat tekhnicheskikh nauk.

New design of a foundry mold for the production of castings by the method of vacuum suction. Trudy Ural. politekh. inst. no.60:178-182 '56. (MLRA 9:10)

(Foundry machinery and supplies)

18(5) PHASE I BOOK EXPLOITATION SOV/2048

Sverdlovsk. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova

Teoriya i praktika liteynogo proizvodstva (Theory and Practice in the Foundry Industry) Moscow, Mashgiz, 1959. 231 p. and 32 p. (Series: Its: [Sbornik] vyp. 89) Errata slip inserted. 5,000 copies printed.

Ed.: A.A. Gorshkov, Corresponding Member, USSR Academy of Sciences, Doctor of Technical Sciences, Professor; Tech. Ed.: N.A. Dugina; Exec. Ed. (Ural-Siberian Division, Mashgiz): A.V. Kalstina, Engineer.

PURPOSE: This book is intended for engineering and scientific workers of institutes and machine-building plants, as well as for students of advanced courses at vuzes.

COVERAGE: This collection consists of articles dealing with practical problems in foundry processes. The articles review the achievements of Ural foundry workers in the past 40 years and present aspects of a current study on the casting of nodular cast iron, its properties and casting methods. A description is given of artistic and architectural casting. Consideration is given to the problem of combatting gases in steel and aluminum. The structure of cast steel is discussed. A recent investigation of vacuum casting including its characteristic properties and new applications is also presented. There are 32 pages of photographs illustrations at the end of the book. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

The author describes in detail the construction of apparatus and machinery used for casting and crystallization of copper alloys including brass rods, tubing and belts of a relatively small cross section and length--up to 1200 x 100 to 120 mm. He gives the methods of operation and recommendations for obtaining satisfactory results, especially by a proper manipulation of crystallizers.

AVAILABLE: Library of Congress

 GO/ng 8-14-59

MINAYEV, Anatoliy Nikolayevich, kand.tekhn.nauk; SHIPILIN, Boris Il'ich, inzh.; TELEGIN, A.S., kand.tekhn.nauk; LEVCHENKO, P.V., kand. tekhn.nauk; SOKOLOV, K.N., kand.tekhn.nauk; SHAVEL'ZON, M.V., inzhener; MINAYEV, A.N., kand.tekhn.nauk; YAROSHENKO, Yu.G., kand.tekhn.nauk; GORSHKOV, A.A., doktor tekhn.nauk, retsenzent; DUBITSKIY, G.M., kand.tekhn.nauk, obshchiy red.; BUTAKOV, D.K., kand.tekhn.nauk, red.; KSENOFONTOV, B.M., kand. tekhn.nauk, red.; POKUCHIKOV, Yu.P., kand.tekhn.nauk, red.; DUGINA, N.A., tekhn.red.

[Cupola furnaces and drying chambers] Liteinye pechi i sushila. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 472 p. (MIRA 12:6)

1. Kafedra liteynogo proizvodstva Ural'skogo politekhnicheskogo instituta (for Gorshkov, Telegin). 2. Chlen-korrespondent AN USSR (for Gorshkov).
(Foundry machinery and supplies)

KSENOFONTOV, B.M., kand.tekhn.nauk

Copper alloy ingot casting by means of vacuum suction. Trudy Ural.politekh.inst. no.89:213-230 '59. (MIRA 12:8)
(Nonferrous ingots) (Copper alloys) (Vacuum metallurgy)

DOBATKIN, Vladimir Ivanovich, doktor tekhn.nauk; KSENOFONTOV, B.M., retsenzent; SPOLUDENNYY, L.F., red.; SYRCHINA, M.M., red. izd-va; TURKINA, Ye.D., tekhn.red.

[Aluminum alloy ingots] Slitki aliuminievykh splavov. Sverdlovsk, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, Sverdlovskoe otd-nie, 1960. 175 p. (MIRA 13:8)
(Aluminum alloys) (Nonferrous ingots)

KSENOFONTOV, Boris Maksimovich; BAZHENOV, F.M., laureat Gosudarstvennoy premii, inzh., retsenzent; DUGINA, N.A., tekhn. red.

[Casting by the vacuum suction method] Lit'e metodom vakuumnogo vsasyvaniia. Sverdlovsk, Mashgiz, 1962. 167 p. (MIRA 15:7)
(Nonferrous metals—Founding) (Vacuum technology)